

Low-temperature light absorption by ...

S/181/62/004/004/032/042  
B102/B104

For very low temperatures ( $s \gg 1$ ) and  $\omega < \mu/k$ ,

$$\alpha = \frac{4G(\infty)n_1 e^6}{3c\epsilon^{5/2} \hbar^2 (b-1)kT\omega} + \frac{3\Phi(b)e^2 m_1^2 m_2 kT}{2\pi c \epsilon^{1/2} \hbar^5 m} ; \text{ if } \omega > \mu/k,$$

$$\alpha = \frac{4G(\infty)n_1 \mu^2 e^6}{3c\epsilon^{5/2} \hbar^4 (b-1)kT\omega^3} + \frac{3\Phi(b)\mu e^2 m_1^2 m_2 kT}{2\pi c \epsilon^{1/2} \hbar^6 m\omega}$$

(14).

In the first case,  $s \sim e^{4z}$ ,  $f_0 = 1$ , in the second one,  $s \sim e^{\mu/kT}$ .

These relations show that, in contrary to the case of high temperatures, absorption will increase with decreasing temperature if the carriers are degenerate. This is observed for InSb and n-type Ge. The most important English-language references are: G. Gobeli, H. Fan. Phys. Rev. 119, 63, 1960; V. Yohuson, V. Lark-Horovitz. Phys. Rev. 71, 374, 1947.

ASSOCIATION: Volgogradskiy pedagogicheskiy institut (Volgograd Pedagogical Institute)

Card 4/6

L 11255-63 EWO(k)/EWT(1)/RDS/EEC(h)-2---AFFTC/ASD/ESD-3--Pz-1---AT/TJP(C)  
 ACCESSION NR: AP3000603 8/0181/63/005/005/1293/1296

AUTHOR: Yakovlev, V. A.

TITLE: Anisotropic absorption of light by current carriers in semiconductors in a strong electrical field

SOURCE: Fizika tverdogo tela, v. 5, no. 5, 1963, 1293/1296

TOPIC TAGS: semiconductors, absorption of light, current carrier

ABSTRACT: The absorption of light by electrons is computed for a conduction band in a strong electric field at various directions of light incident on the field. Computations for incident light in the general case are very complex but are simplified by considering propagation directions along one of the crystal axes. It is interesting that the formulas for cross section absorption are independent of the initial energy states of the electrons. Thus, the corresponding coefficient of absorption may be obtained without statistical averaging, through a simple multiplication by the number of optically active electrons per unit volume. This operation is shown in Equation (1). The anisotropy may be determined by the ratio of absorption coefficients as shown in Equation (2), which reduces to Equation (3) when the absolute value of the wave vector of incident photon multiplied by the width of conduction band yields a product much larger than unity. Orig. art. has: Card 1/3

L 11255-63  
ACCESSION NR: AP3000603

12 formulas.

ASSOCIATION: Volgogradskiy pedagogicheskii institut (Volgograd Pedagogical  
Institute)

SUBMITTED: 21Nov62

DATE ACQ: 11Jun63

ENCL: 01

SUB CODE: RS

NO REF SOV: 004

OTHER: 001

Card 2/32

L 18422-63 EWT(1)/EWG(k)/BDS AFETC/ASD/ESD-3/IJP(C) Pz-4 AT  
ACCESSION NR: AP3005319 S/0181/63/005/008/2133/2137

AUTHOR: Yakovlev, V. A.

TITLE: Absorption of light by free carriers in semiconductors with short-range  
interacting field of impurity centers

SOURCE: Fizika tverdogo tela, v. 5, no. 8, 1963, 2133-2137

TOPIC TAGS: absorption, free carrier, semiconductor, impurity, short-range field,  
carrier current, optical transition, light wave, frequency

ABSTRACT: It is not now possible to give a detailed discussion of the conditions under which the potential of an impurity center becomes short range, but the author believes that this process is favored by a large concentration of current carriers shielding the impurity charges. He therefore investigates metals and semiconductors with high concentrations of carriers. He discards ionization of deep impurities and the Born approximation as explanations, and considers interaction with the field of a light wave. He thus uncovers the possibility of direct (first order) optical transitions within a single band, accompanied by the

Card 1/2

L 18422-63  
ACCESSION NR: AP3005319

absorption of light. He determines the wave function of a band electron in this field of impurities having a short range of action. The coefficient of light absorption by the free carriers is then computed as a function of frequency, temperature, and concentration of impurities and carriers. Orig. art. has: 11 formulas.

ASSOCIATION: Volgogradskiy pedagogicheskiy institut (Volgograd Pedagogical Institute)

SUBMITTED: 01Mar63

DATE ACQ: 06Sep63

ENCL: 00

SUB CODE: PH

NO REF SOV: 002

OTHER: 005

Card 2/2

L 3204-66 EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5016306

UR/0190/64/006/012/2202/2202

AUTHOR: Babitskiy, B. D.; Dogoplosk, B. A.; Kormer, V. A.; Lobach, M. I.; Tilyakova, Ye. I.; Chesnokova, N. N.; Yakovlev, V. A.

TITLE: Stereospecific polymerization of butadiene in the presence of pi-allylic complexes

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 6, no. 12, 1964, 2202

TOPIC TAGS: polymerization, butadiene, catalysis, macromolecular chemistry

Abstract: It was shown that the polymerization of butadiene in benzene solutions under the influence of catalytic systems based on pi-allylic complexes of nickel and metal halides ( $TiCl_4$ ,  $VCl_4$ ,  $WCl_6$ ,  $AlBr_3$ , and  $NiCl_2$ ) leads to the formation of a polymer with predominantly (up to 84%) cis-1,4-units. The stereospecificity of these catalysts does not depend on the nature of the metal in the Lewis acid. The polymerization temperature was 30-50° and the time 2-18 hours.

ASSOCIATION: none

SUBMITTED: 13 Jul 64

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: 00, 00

JPS

Card 1/1 SC



BABITSKIY, B.D.; DOLGOPLOSK, B.A.; KORMER, V.A.; LOBACH, M.I.; TINYAKOVA,  
Ye.I.; YAKOVLEV, V.A.

Influence of the nature of halogen atom on the stereospecificity  
of  $\pi$ -allyl complexes of nickel in butadiene polymerization.

Izv. AN SSSR. Ser. khim. no.8:1507 '65.

(MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo  
kauchuka im. S.V. Lebedeva i Institut neftekhimicheskogo sinteza  
im. A.V. Topchiyeva AN SSSR.

I. 57011-65 ENT(m)/ENT(c)/ENT(j)/T Pa-l/Pr-l RH

UN/0020/65/161/003/0503/0505

ACCESSION NO: AP5010579

AUTHORS: P. Mitkevich, B. D.; Dolgoplosk, B. A. (Academician); Kormor, V. A.; Lobach, M. I.; Tinsheva, Ye. I.; Kabanov, V. A.

TITLE: Stereospecific polymerization of butadiene by catalytic systems based on the  $\pi$ -allyl nickel complexes

SOURCE: AN SSSR. Doklady, v. 161, no. 3, 1965, 503-505

TOPIC TAGS: polymerization, butadiene, stereospecificity, nickel organic compound, catalyst

ABSTRACT: The stereospecific catalytic effect of bis-( $\pi$ -crotyl) complexes of nickel in the polymerization of butadiene was investigated and compared with the effect of  $\pi$ -allyl-Ni complexes. The catalyst was obtained by treating bis-( $\pi$ -crotyl)-Ni with Ni-halides in a ratio of 1:2. It was found that the catalysts cause the formation of 1-4 polybutadiene, consisting mainly (up to 95%) of cis-1,4-rings, and that the more effective catalysts form in the presence of TiCl<sub>4</sub>. The bis-( $\pi$ -allyl)-nickel-bromide catalyst caused the formation of polymers in which the number of cis-rings is equal to that of trans-rings, with the formation of 1, 2-rings being negligible. Addition of metal halides to bis-( $\pi$ -allyl)-nickel-bromide and to bis-( $\pi$ -crotyl)-  
Card 1/2



L.57011-65

ACCESSION NO: AP5010579

nickel-chloride increased the catalytic activity and altered the stereospecificity. All of the polybutadienes formed contained up to 92% cis-1, 4-rings. The structure of the polymer was practically independent of the nature of the metal halide. Orig. art. has: 3 tables and 1 formula.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Research Institute for Synthetic Rubber); Institut neftokhimicheskogo sinteza im. A. V. Topchiyova, Akademii nauk USSR (Institute for Petrochemical Synthesis, Academy of Sciences, USSR)

SUBMITTED: 30Jov64

ENCL: 00

SUB CODE: 00

NO REF SOV: 001

OTHER: 003

dm  
Card 2/2

YAKOVLEV, V.A.

Studying the wear resistance of small-diameter bits. Neft. i gaz.prom.  
no. 1833-35 in No. 162. (MIRA 18:8)

4 03/90-01 LNA(1) LJP(C) GG/AL

ACC NR: AP6030973

SOURCE CODE: UR/0181/66/008/009/2755/2761

AUTHOR: Yakovlev, V. A.

SD  
B

ORG: Volgograd Pedagogical Institute im. A. S. Serafimovich (Volgogradskiy pedagogicheskiy institut)

TITLE: Temperature dependence of light-absorption coefficient of semiconductors in a quantized electric field

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2755-2761

TOPIC TAGS: temperature dependence, light absorption, absorption coefficient, semiconductor, electric field, p type semiconductor, extrinsic semiconductor

ABSTRACT: The author presents calculations of temperature and frequency dependences of the light-absorption coefficient of extrinsic p-type semiconductors in a quantized electrical field. Orig. art. has: 29 formulas. [Based on author's abstract]

SUB CODE: 20/ SUBM DATE: 13Nov65/ ORIG REF: 007/ OTH REF: 000/

Card 1/1 *egk*

KLYACHKIN, L.M.; KATRUSHENKO, R.N.; YAKOVLEV, V.A.; GRIB, V.P.

Changes in the hemodynamics in liver disease. Vest. AMN SSSR.  
18 no.10:9-15 '63. (MIRA 17:6)

1. Voenno-meditsinskaya ordena Lenina akademiya imeni Kirova.

YAKOVLEV, Valentin Aleksandrovich; MAYSHEVA, Nataliya Ivanovna; MALKIN, I.I.,  
red.izd-vs; ALADOVA, Ye.I., tekhn.red.

[Plain and reinforced concrete] Beton und Eisenbeton. Moskva, Ugle-  
tekhnizdat. [In German] No.2. 1957. 61 p. (MIRA 12:5)  
(Concrete)

YAKOVLEV, V.A., Cand Vet Sci --(diss) "Effect of paranephral  
~~motor~~ blockade <sup>upon</sup> the course of secondary disturbances of the mo-  
tor function of the ~~the~~ <sup>rumina in cattle.</sup> Kazan', 1959. 17 pp (Min of Agr  
USSR. Kazan' State Vet Inst in N.E. Bauman). 150 copies  
(KL,38-59, 119)

69



BADAR'YAN, G.G.; TYUTIN, V.A.; CHEREPUSHKIN, S.D.; ZUZIK, D.T.;  
KHODASEVICH, B.G.; FLAYER, S.V.; GUSAROV, Ye.I.; KAZANSKIY,  
A.M.; KASSIROV, L.N.; KARAYEV, S.A.; ABRAMOV, V.A.;  
VASIL'YEV, N.V.; BUGAYEV, N.F.; SAPIL'NIKOV, N.G.; KASTORIN,  
A.A.; RUDNIKOV, V.N.; YAKOVLEV, V.A.; PEREMYKIN, V.I.;  
ISAYEV, A.P.; KUZ'MICHEV, N.N.; IL'IN, S.A.; PRONIN, V.A.;  
LUK'YANOV, A.D.; SHAKHOV, Ya.K.; IL'ICHEV, A.K., kand. sel'-  
khoz. nauk; KOGAN, A.Ya.; TSYNKOV, M.Yu.; BABIY, L.T.;  
GORBUNOV, I.I.; KOVALEV, A.M.; ROMANCHENKO, G.R.; BRODSKAYA,  
M.L., red.; IVANOVA, A.N., red.; GUREVICH, M.M., tekhn. red.;  
TRUKHINA, O.N., tekhn. red.

[Economics of agriculture] Ekonomika sotsialisticheskogo sel'-  
skogo khoziaistva; kurs lektsii. Moskva, Sel'khozizdat, 1962.  
710 p. (MIRA 15:10)

(Agriculture—Economic aspects)

BIGLER, M.S.; SHARYGINA, L.I.; KASPAROVA, A.B.; YAKOVLEV, V.A.;  
GRINEVICH, N.N.; YUDINA, A.P.; SEMICHENKO, N.P.;  
STOLYAROV, A.I.; FURSOVA, T.A.; KOZLOV, I.D., red.;  
SERPOKRYL, S.M., red.

[Leningrad and Leningrad Province in figures; a statistical abstract] Leningrad i Leningradskaia oblast' v tsifrakh; statisticheskii sbornik. Leningrad, Lenizdat, 1964. 250 p.  
(MIRA 18:1)

1. Leningrad (Province) Statisticheskoye oblastnoye upravleniye. 2. Statisticheskoye upravleniye goroda Leningrada (for Bigler, Sharygina, Kasparova, Yakovlev, Grinevich, Yudina). 3. Statisticheskoye upravleniye Leningradskoy oblasti (for Semichenko, Stolyarov, Fursova). 4. Nachal'nik Statisticheskogo upravleniya goroda Leningrada (for Kozlov).

BIGLER, M.S.; SHARYGINA, L.I.; KASPAROVA, A.B.; YAKOVLEV, V.A.;  
GRINEVICH, N.N.; YUDINA, A.P.; SEMICHENKO, N.P.;  
STOLYAROV, A.I.; FURSOVA, T.A.; KOZLOV, I.D., red.;  
SERPOKRYL, S.M., red.

[Leningrad and Leningrad Province in figures; a statistical abstract] Leningrad i Leningradskaia oblast' v tsifrakh; statisticheskii sbornik. Leningrad, Lenizdat, 1964. 250 p. (MIRA 18:2)

1. Leningrad. Statisticheskoye upravleniye. 2. Statisticheskoye upravleniye Leningrada (for Kozlov, Sharygina, Kasparova, Yakovlev, Grinevich, Yudina). 3. Statisticheskoye upravleniye Leningradskoy oblasti (for Semichenko, Stolyarov, Fursova).

CA

11B

method of investigating the oxidation processes in the tissues of the living organism. I. D. Entina and V. A. Yakovlev. *Biokhimiya* 16, 567-71 (1951); cf. Roseman, Goodwin, and McCulloch, *C.A.* 40, 6017. — A diffusion current proportional to the O concn. in the cathode space is set up between 2 electrodes, having a difference of potential of 0.9 v., dipping into an aq. soln. of O. By measuring the diffusion current between the electrodes placed in the animal tissue, the amt. of O (extent of oxidative process) can be detd. A simplified method for increasing the diffusion current is given. The method was applied to the measurement of the O tension in a rabbit's brain under various conditions. H. Priestley

(BA-A111 M4 '53:675)

CA

11A

**Localization of cholinesterase in striped muscle.** V. V. Portugalyov and V. A. Yakovlev, *Doklady Akad. Nauk S.S.S.R.* 78, 1021-4 (1961).--In specimens of striped muscle treated with  $Mg^{++}(1)CH_3CH_2CH_2N_2^+$  the colored Cu sulfide appears only in the region of motor disks; enzymically active locations are found only at the points of contact of the nerve with the muscle; the results are the same for rabbits and frogs. Since the reagent (above) shows poor penetration into the tissues, the tissues were then preliminarily treated with  $Me_2CO$  at  $-15^\circ$  to improve permeability and after 3-12 hrs. treatment, the above test gave a different result. While most of the enzyme was still located at nerve-muscle junctions, it was also found in the muscle fibers, somewhat more being located in the nuclei than in the sarcoplasm. To check for artificial distribution that might have arisen, the tissues were treated with procaine for 0.5 hr. to inactivate the enzyme and were washed with Ringer soln.; then the  $Me_2CO$  treatment was performed and the color test run; the enzyme was now found only in the nuclei of the muscle fibers, to which procaine had no access owing to its poor penetrability. In weakly tonic muscle (frog tongue) cholinesterase is found within the fiber and in the nuclei, but most is located still at the nerve-muscle junction. In a tonic muscle (head retractor of turtle) the enzyme is found (without  $Me_2CO$  treatment) only in the zone of motor nerve endings, while after  $Me_2CO$  treatment it is found also in the nuclei of all regions of the muscle. In denervated muscle (rabbit leg muscle) 30 days after section the enzyme is found in the muscle fibers even remote from the nerve junction.

G. M. Kozolapoff

Inst-Biophysics, A S USSR

1. ALEKSAKHINA, N. V., YAKOVLEV, V. A.
2. USSR (600)
4. Demianovskii, S. IA.
7. "Course in organic and biological chemistry." S. IA. Demianovskii. Reviewed by N. V. Aleksakhina, V. A. Yakovlev. *Biokhimiia* 17, no. 6, 1952.
9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.



YAKOVLEV, V. A.

USSR/Biology - Microbiology

Sep/Oct 52

"Review of V. S. Gostev's Book, 'Biochemical Principles of Medical Bacteriology', V. A. Yakovlev"

"Mikrobiologiya" Vol 21, No 5, pp 617-620

According to Yakovlev, this book is welcome mainly because 5 yrs have passed since the publication of any book in the biochemistry of bacteria. Yakovlev states that V. S. Gostev has attempted to base the biol and chem aspects of bacteriology on dialectic materialism and on the teachings of Michurin and Lysenko. According to Yakovlev, the scientific level of the book, however, as far as chemistry

22974

and biochemistry are concerned, is very low. Yakovlev states that Gostev, in his efforts to give up-to-date accounts of a number of biochem problems in a comparatively popular form, has made many grave errors. Particularly, he says, Gostev is wrong in regard to the significance of optically active compds for heterotrophic organisms. Book was published by Acad Med Sci USSR, 1951, 163 pp, 10,000 copies, 11 rubles 10 kopecks.

22974

YAKOVLEV, V. A.

Δ Location of cholinesterase in animal tissue. V. V. Portuzalov and V. A. Yakovlev. Voprosy Med. Khim. 5, 183-207 (1953); Referat Khim. 1954, No. 12903.  
The localization of specific (I) and nonspecific (II) cholinesterase in tissue was studied. The histochem. method is based on enzymic splitting of thiocholine from acetylthiocholine (III) by I and II, and from butyrylthiocholine (IV) which is done practically only with the II enzyme. The split-off substances were pptd. *in loco* as Cu mercaptides and were further turned into colored CuS. A comparison of the color of sections incubated separately and in the presence of III and IV enables differentiation of the localization of various cholinesterases. To improve the penetration of III and IV into the cells, the tissue was cooled to  $-15^{\circ}$  in Me<sub>2</sub>CO and the sections were prepd. on a freezing microtome; II was found in all tissues. It was absent from nerve fibers, arterio-venous anastomoses, cerebral cortex, skeletal muscles, and others. II was found in some cells of the tactile layer of finger tips, in carotid glomus, in some cells of sympathetic ganglion, in the center of the vagus, in flat muscles, and liver. In most of these cases II is distributed in the cells more or less evenly. In contrast to this enzyme, I is present in all the enumerated tissue as well as in some others, except the liver. In most cases, it is distributed locally in tissue and usually is found in nerve structure where upon nervous excitation acetylcholine is formed. In skeletal muscles I is localized predominantly in motor end plates and adjacent parts of muscle fiber (tonic muscles). When the nerve is cut (after degeneration), I spreads to a larger part of the fiber. M. Hosh.

YAKOVLEV, V. A.

USSR/Biology - Biochemistry

Card 1/1      Pub. 22 - 33/51

Authors : Yakovlev, V. A., and Sokolovskiy, V. V.

Title : ~~Histochemical investigation of the localization of thiol compounds having a functional value~~

Periodical : Dok. AN SSSR 101/2,321-324, Mar 11, 1955

Abstract : A new histochemical method for the discovery of SH-groups (serum hepatitis) in tissues of animal organisms is described. The participation of thiol compounds in many biochemical processes in animal organisms is explained. Twelve references: 6 USA, 4 USSR, 1 French and 1 Indian (1921-1952). Graph; illustrations.

Institution : .....

Presented by: Academician L. A. Orbeli, November 17, 1954

YAKOVLEV, V. A.

USSR/ Medicine - Histology

Card 1/1 Pub. 22 - 42/46

Authors : Portugalov, V. V., and Yakovlev, V. A.

Title : Distribution of succino-dehydrogenase in the sensory and motor nerve extremities

Periodical : Dok. AN SSSR 103/1, 157-160, Jul 1, 1955

Abstract : Experiments were conducted on the tissue of cats that were in a state of narcosis to determine the distribution of succino-dehydrogenase in the sensory and motor extremities of nerves. Results are described. Eleven references: 8 USA, 1 Eng., and 2 Germ. (1934-1953). Illustrations.

Institution : Acad. of Med. Sc., USSR, Inst. of the Brain

Presented by: Academician L. A. Orbeli, February 25, 1955

YAKOVLEV, V.A., kandidat khimicheskikh nauk

To the editor of "Arkhiy patologii", I.V.Davydovskii active member  
of the Academy of Medical Sciences of the U.S.S.R. Arkh.pat. 18  
no.8:133 '56. (MLRA 10:2)

(CHOLINESTERASE)

YAKOVLEV, V. A.

SAVICH, K.V.; YAKOVLEV, V.A.

Content and localization of sulfhydryl groups in different regions  
of cat brain [with summary in English]. Vop.med.khim. 3 no.2:  
121-128 Mr-Apr '57. (MLRA 10:7)

1. Institut mozga AMN SSSR, Moskva.  
(SULFHYDRYL COMPOUNDS, determ.  
in brain of cats, distribution & content (Rus))  
(BRAIN, metab.  
sulfhydryl cpds., distribution & content in cats (Rus))



YAKOVLEV, V.A., TORCHINSKIY, Yu.M.

Ultramicromethod for quantitative determination of thiol  
compounds in tissues [with summary in English]. Biokhimiia  
23 no.5:755-759 S-O '58 (MIRA 11:11)

1. Laboratoriya gistokhimii Instituta moga ANN SSSR, Moskva  
(SULPHYDRYL COMPOUNDS, determ.  
in micro- & ultramicro-lytic tissues (Rus))

PORTUGALOV, V.V.; TSVETKOVA, I.V.; YAKOVLEV, V.A.

Localization of protein metabolism in the microstructures of  
the central nervous system. TSitologia 1 no.4:422-430  
Jl-Ag '59. (MIRA 12:10)

1. Laboratoriya gistokhimii Instituta mozga AMN SSSR, Moskva.  
(PROTEIN METABOLISM) (BRAIN)

17(3)

AUTHORS:

Yakovlev, V. A., Volkova, R. I.

SOV/20-128-4-58/65

TITLE:

The Kinetics of Interaction Between Choline Esterase and Irreversible Inhibitors

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 4, pp 843-846 (USSR)

ABSTRACT:

The interaction of organophosphorous compounds (OPC) with active centers of choline esterase (ChE) represents an irreversible bimolecular reaction (Refs 1, 2). For the computation of the velocity constant  $K_2$  of the latter it is therefore necessary, to measure the absolute quantities of the concentrations of ferment and inhibitor in the course of the interaction. This measurement is difficult because of the insufficiency of the ferment in the individual stages. The OPC-concentration which completely stops the activity of the ferment under experimental conditions, is very low ( $10^{-6}$  -  $10^{-8}$  M). Therefore it cannot be determined by means of the usual analytic methods. The authors are thus faced by two tasks: a) method of investigating the kinetics, based upon the activity reduction of ChE during the interaction

Card 1/4

The Kinetics of Interaction Between Choline Esterase and Irreversible Inhibitors

SOV/20-128-4-58/65

with OPC, and b) methods of an experimental concentration determination of active ChE centers in preparations which do not represent individual ferments. The present paper is devoted to the solution of these two problems. The solution of problem a) seems possible by choosing conditions under which the concentration of one component, used in excess, may be considered as being constant. As is known, constant  $K_2$  in this case may be determined on the basis of an equation of the reaction kinetics of the first order (1). This equation is transformed into (2) and (3). The experimental conditions may be chosen in such a way that the activity of ferment A is proportional to the concentration of the active centers. The method applied up to now by several investigators (e.g. Refs 3, 4), shows several shortcomings. In order to do away with them, the authors investigated the interaction kinetics of ChE and OPC by continually measuring the gradually decreasing ChE activity in the course of the ChE interaction with the inhibitor. Since in this case the inhibition processes of the ferment were combined with the measurement of the ac-

Card 2/4

SOV/20-128-4-58/65

The Kinetics of Interaction Between Choline Esterase and Irreversible Inhibitors

tivity, acetylcholine (AcCh) has to be added. The ferment used was a dry ChE preparation from the serum of horse blood, purified 40 times, and the inhibitor used was armine (ethyl-paranitrophenyl-ester of ethylphosphinic acid, Ref 5). Its concentration was 40 times stronger than necessary for a 100 per cent inhibition. pH was  $7 \pm 0.05$ , the temperature was  $40 \pm 0.05^\circ$ . In the control experiments (without armine), AcCh decomposed according to the reaction type "zero" (Fig 1:1). It was possible to express the ChE activity by the tangent of  $\alpha_1$ , the angle of the line-inclination. The interaction constants of armine and ChE were computed from the graphically determined values of the original activity  $A_0$  and the residual activity  $A_t$  by means of equation 3. With an inhibitor excess,  $K_2$  remains satisfactorily constant during the entire reaction. It was proved that the value of  $K_2$  depends on the AcCh concentration. This becomes clear due to the concept regarding the competition between the substrate and the ferment inhibitor for the active center. Figure 2 graphically

Card 3/4

The Kinetics of Interaction Between Choline Esterase and Irreversible Inhibitors

SOV/20-128-4-58/65

gives the results of more detailed experiments on the dependence  $K_2 = f(C_{AcCh})$ . Hence this dependence in comparatively low AcCh concentrations is rather approximated to a linear dependence.  $K_2$  was therefore extrapolated to the zero concentration of AcCh, for the purpose of determining  $K_2$  of the reaction between armine and ChE without a substrate (equation 5).  $K_2$  was also determined by an independent method (equation 7).

On the whole the results obtained by the two determination methods showed good agreement. This confirms the correctness of the concepts on which they are based, on the interaction mechanism between irreversible inhibitors and active centers of ChE. There are 3 figures and 8 references, 3 of which are Soviet.

ASSOCIATION: Institut evolyutsionnoy fiziologii im. I.M. Sechenova Akademii nauk SSSR (Institute of Evolution Physiology imeni I.M. Sechenov of the Academy of Sciences, USSR)  
PRESENTED: April 2, 1959, by M. I. Kabachnik, Academician  
SUBMITTED: April 2, 1959  
Card 4/4



YAKOVLEV, V. A., TITOVA, L. K., BRONSHTEYN, A. A., VINNIKOV, YA. A.

"The Localization and Distribution of the 'Total' Protein and its Functional (SH, -SS-, COOH) Groups in Corti's Organ Under Conditions of Relative Rest and in a State of Excitation."

report submitted for the First Conference on the problems of Cyto and Histochemistry, Moscow, 19-21 Dec 1960.

Institute of Evolutionary Physiology Imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad.

YAKOVLEV, V. A., VOLKOVA, R. I., GODOVIKOV, N. N., MAGAZANIK, L. I.,  
MASTRIZKOVA, T. A., ROZHKOVA, YE. K., FRUYENTOV, N. K., MIKHelson, M. YA.,  
KABACHNIK, M. I. (USSR)

"The Significance of Onic Group and of its Position in an  
Anti-Cholinesterase Substance Molecule for its Inter-action  
with Cholinesterases and for Pharmacologic Effects."

Report presented at the 5th International Biochemistry Congress,  
Moscow, 10-16 August 1961

SO: Preprints of Soviet Papers Read at V Int'l Biochem Cong, 10-16 Aug 61,  
Moscow, Uncl.

"The Investigation of the Active Site of Cholinesterases by Means of Organo-  
phosphorus Compounds," by V.A.YAKOVLEV, I.I. BRICK, R.I. VOLKOVA, Inst  
Evolutionary Physiology in I.M. Sechenov, AS USSR.

YAKOVLEV, V.A.; SLEPTSOVA, L.A.

Hyaluronic structures in nerve tissue. TSitologiya 3 no.5:605-607  
S-0 '61. (MIRA 14:10)

1. Laboratoriya biokhimi i biologicheskii aktivnykh veshchestv  
Instituta evolyutsionnoy fiziologii AN SSSR i Kafedra biokhimi i  
Leningradskogo universiteta.  
(HYALURONIC ACID) (NERVES--ANATOMY)

YAKOVLEV, V.A., mayor med.sluzhby

Clinical value of phenylin. Voen.-med. zhur. no. 2:72-73 F '61.

(ANTICOAGULANTS) (INDANDIONE) (MIRA 14:2)

VOLKOVA, R.I.; GODOVIKOV, N.N.; KABACHNIK, M.I.; MAGAZANIK, L.G.;  
MASTRYUKOVA, T.A.; MIKHEL'SON, M.Ya.; ROZHKOVA, Ye.K.;  
FRUYENTOV, N.K.; YAKOVLEV, V.A.

Chemical structure and biological activity of phosphorus  
organic cholinesterase inhibitors. Vop. med. khim. 7 no.3:  
250-259 My-Je '61. (MIRA 15:3)

1. Laboratory for the Pharmacology and Biochemistry of  
Biologically Active Compounds, "I.M. Sechenov" Institute of  
Evolutionary Physiology, Academy of Sciences of the U.S.S.R.,  
and Laboratory of Organophosphorus, Institute of Elementoorganic  
Compounds, Academy of Sciences of the U.S.S.R., Leningrad.  
(CHOLINESTERASES)  
(PHOSPHORUS ORGANIC COMPOUNDS)

YAKOVLEV, V.A.; TITOVA, L.K.; BRONSHTEYN, A.A.; VINNIKOV, Ya.A.

Localization and cytochemical characteristics of proteins of the hair cells of Corti's organ during a state of relative rest and during acoustic stimulation. Dokl. AN SSSR 136 no.2:456-459 '61. (MIRA 14:1)

1. Institut evolyutsionnoy fiziologii imeni I.M. Sechenova Akademii nauk SSSR. Predstavleno akademikom I.I. Shmal'gauzenom.

(PROTEINS IN THE BODY)

(SOUND—PHYSIOLOGICAL EFFECT)

(LABYRINTH (EAR))

YAKOVLEV, V.A.; ROZENGART, Ye.V.

Model studies on the action of esterases. Dokl. AN SSSR 137 no.6;  
1467-1469 Ap '61. (MIRA 14:4)

1. Institut evolyutsionnoy fiziologii imeni I.M.Sechenova AN SSSR.  
Predstavleno akademikom M.I.Kabachnikom.  
(Esterase)

YAKOVLEV, V. A.		
51.	VINYL ESTERS OF PHOSPHOROUS ACIDS. I. F. Idrisova et al. . . . .	303
52.	ESTERS OF UNSATURATED PHOSPHOROUS ACIDS. Chen Zhun Yui . . . . .	310
53.	DERIVATIVES OF ETHYLALKYLPHOSPHONIC ACIDS. G. Kozai and V. S. Tsivunin . . . . .	317
54.	REACTIONS OF TRIALKOXYSIANES AND ALKYLARYALKOXYSIANES WITH PHOSPHORIC ANHYDRIDE AND PHOSPHORUS CHLORIDES. A. P. Kravkov and D. A. Karateev . . . . .	324
55.	SYNTHESIS BASED ON PROPHINE. E. V. Kuznetsov et al. . . . .	329
56.	REACTION OF DIALKYL, DIARYL, TRIALKYL AND TRIARYL PHOSPHITES WITH BIS(DIALKOXY-THIOPHOSPHONO)DISULFIDES. N. N. Mel'nikov et al. . . . .	333
57.	NEW SYNTHESIS OF THIOPHOSPHATE ESTERS. Ya. A. Mandel'baum et al. . . . .	340
58.	SYNTHESIS AND INSECTICIDAL AND ACARICIDAL ACTIVITY OF O,O-DIETHYL S-2-ALKYLSULFINYL-ETHYL AND O,O-DIETHYL S-2-ALKYLSULFONYLETHYL DITHIOPHOSPHATES. M. F. Shostakovskii et al. . . . .	346
59.	SYNTHESIS OF SUBSTITUTED AMIDES AND MIXED ESTERS OF PHOSPHORUS ACIDS WITH POSSIBLE PHYSIOLOGICAL ACTIVITY. P. I. Alimov et al. . . . .	353
60.	ESTERS OF PHOSPHORIC ACID WITH MERCURY RADICALS AND FUNGICIDAL ACTIVITY. D. G. Yurko et al. . . . .	359
61.	ETHYLENEPHOSPHORAMIDES WITH ANTITUMOR ACTIVITY. L. D. Protchenko . . . . .	362
62.	ETHYLENIMINE DERIVATIVES OF SUBSTITUTED PHOSPHONIC AND THIOPHOSPHONIC ACIDS AND THEIR BIOLOGICAL PROPERTIES. A. A. Kropacheva et al. . . . .	366
63.	SUBSTITUTION OF CHLORINE ATOMS IN PHOSPHONITRILIC CHLORIDE TRIMER BY AMINO RESIDUES AND BIOLOGICAL ACTIVITY OF SOME OF THESE AMINO DERIVATIVES. A. A. Kropacheva et al. . . . .	372
64.	MECHANISM OF THE ACTION OF ORGANOPHOSPHORUS COMPOUNDS ON WEAR AND FRICTION. P. I. Sanin and A. V. Ul'yanova . . . . .	376
65.	USE OF DIALKYL DITHIOPHOSPHATES IN INDUSTRY. P. I. Sanin et al. . . . .	383
66.	ORGANOPHOSPHORUS COMPOUNDS WITH CCl <sub>3</sub> GROUPS AS OIL ADDITIVES. P. I. Sanin et al. . . . .	389
67.	TRICHLOROTRICESYL PHOSPHATE AS A POLY(VINYL CHLORIDE) PLASTICIZER. V. A. Voskresenskiy . . . . .	395
68.	AZOMETHINE DYES CONTAINING PHOSPHONO GROUPS. M. G. Izayev . . . . .	399
PHYSIOLOGY SECTION		
69.	PHYSIOLOGICAL ACTIVITY OF ORGANOPHOSPHORUS COMPOUNDS. E. V. Zelzal et al. . . . .	403
70.	MECHANISM AND KINETICS OF THE REACTION OF ORGANOPHOSPHORUS COMPOUNDS WITH CHOLINESTERASE. V. A. Yakovlev . . . . .	424
Khimiya i Prikladnye Fezferorganicheskikh Soedineniy (Chemistry and Application of Organophosphorus Compounds) A. Ye. Arbutov, Ed. publ. by Kazan' Attil, Acad. Sci. USSR, Moscow, 1962 632pp.		

Collection of complete papers presented at the 1959 Kazan Conference on Chemistry of Organophosphorus Compounds.



BRIK, I.L.; YAKOVLEV, V.A.

Anticholinesterase activity of the oxidation products of  
dithiophosphoric acid (M-74) esters. Biokhimiia 27 no.3:481-486  
My-Je '62. (MIRA 15:8)

1. Institute of Evolutionary Physiology, Academy of Sciences of the  
U.S.S.R., Leningrad.  
(CHOLINESTERASES) (PHOSPHORODITHIOIC ACID)

BRIK, I.L.; YAKOVLEV, V.A.

Comparative study of the properties of cholinesterases of the  
nervous system in vertebrates and insects. *Biokhimiia* 27  
no.6:993-1003 N-D '62. (MIRA 17:5)

1. Institut evolyutsionnoy fiziologii imeni Sechenova AN SSSR,  
Leningrad.

YAKOVLEV, V.A.; VOLKOVA, R.I.

Study of the active centers of cholinesterases with the aid of organophosphorus inhibitors. Dokl. AN SSSR 146 no.1:217-220 S '62. (MIRA 15:9)

1. Institut evolyutsionnoy fiziologii im. I.M. Sechenova AN SSSR.  
Predstavleno akademikom M.I. Kabachnikom.  
(CHOLINESTERASE) (INHIBITION (CHEMISTRY))  
(PHOSPHORUS ORGANIC COMPOUNDS)

YAKOVLEV, V.A., doktor khim. nauk

General problems of chemistry and biology; a conference on  
the mechanism and kinetics of enzymatic catalysis. Vest. AN  
SSSR 33 no.5:112-114. My '63. (MIRA 16:6)

(Catalysis) (Enzymes)

GODOVIKOV, N.N.; GODYNA, Ye.I.; KABACHNIK, M.I., akademik; MIKHEL'SON, M.Ye.;  
ROZENGART, Ye.V.; YAKOVLEV, V.A.

Anticholinesterase properties of some O-ethyl-S-alkylmethyl  
thiophosphinates. Dokl. AN SSSR 151 no.5:1104-1107 Ag '63.  
(MIRA 16:9)

1. Institut elementoorganicheskikh soedineniy AN SSSR i Institut  
evolyutsionnoy fiziologii im. I.M.Sechenova AN SSSR.  
(Cholinesterases) (Phosphinic acid)

YAKOVLEV, V.A.; ENGEL'GARDT, V.A., akademik, glav. red.; DEBORIN,  
G.A., zam. glav. red.; BRAUNSHTEYN, A.Ye., akademik, red.  
POZNANSKAYA, A.A., red.

[Enzymes] Fermenty. Moskva, Nauka, 1964. 310 p.  
(MIRA 17:9)

BRAUNSHTEYN, A.Ye., red.; YAKOVLEV, V.A., red.

[Mechanism and kinetics of enzymic catalysis] Mekhanizm i kinetika fermentativnogo kataliza. Pod red. A.E. Braunshteina i V.A.Iakovlova. Moskva, Nauka, 1964. 294 p. (MIRA 17:9)

1. Nauchnaya konferentsiya posvyashchennaya problemam mekhanizma deystviya i kinetiki fermentativnogo kataliza, Moscow, 1963. 2. Institut khimicheskoy fiziki AN SSSR i Institut radiatsionnoy i fiziko-khimicheskoy biologii AN SSSR (for Yakovlev).

L 1706-66 EWT(1)/EWA(j)/EWA(b)-2 BW/RO

ACCESSION NR: AP5021652

UR/0218/65/030/004/0875/0879

577,153.4

AUTHOR: Grigor'yeva, G. M.; Yakovlev, V. A.

TITLE: Thermodynamic characteristics of the interaction of choline esterases and tetraalkyl ammonium ions

SOURCE: Biokhimiya, v. 30, no. 4, 1965, 875-879

TOPIC TAGS: enzyme, entropy, enthalpy, thermodynamics, ammonia compound, biochemistry

ABSTRACT: A study was made of the temperature dependence of the inhibition constant of tetraethyl ammonium and tetramethyl ammonium with choline esterase from horse serum and acetyl choline esterase from erythrocytes. It was found that the interaction of the ions of tetraalkyl ammonium with the anionic center of the active surface of a choline esterase is accompanied by a significant change in enthalpy and entropy. In the cases investigated, change in the enthalpy  $\Delta H$  varied from 8.2 to 12.8 kcal/mole and change in the entropy  $\Delta S$  varied from 14 to 29 cal/mole/degree. This permits the assumption that formation of the structure of the enzyme inhibitor is accompanied by structural changes in the

Card 1/2



L 1706-66

ACCESSION NR: AP5021652

enzyme active surface. The anionic center evidently has not only a basic value but also depends on the reaction with the substrate of the active center of the choline esterase. Orig. art. has: 2 formulas, 1 figure and 2 tables

ASSOCIATION: Institut evolyutsionnoi fiziologii i biokhimii im. I. Sechenova Akademii nauk SSSR, Leningrad (Institute of Evolutionary Physiology and Biochemistry, AN SSSR, Leningrad).

SUBMITTED: 12Jan65

ENCL: 00

SUB CODE: LS

NR REF SOV: 001

OTHER: 009

Card 2/2

YAKOVLEV, Viktor Andreyevich; LOSHADKIN, N.A., red.

[Kinetics of enzymatic catalysis] Kinetika fermentativ-  
nogo kataliza. Moskva, Nauka, 1965. 247 p.  
(MIRA 19:1)

~~YAKOVLEV, V.B.~~

A conference on the history of metallurgy. Vop. 1st.est. 1  
tekh. no.1:311-312 '56. (MLRA 9:10)

(Metallurgy--History)

YAKOVLEV, V.B.

Development of the production of weldable iron. Metallurg. 2 no.8:  
45-47 Ag '57. (MIRA 10:9)  
(Iron--Metallurgy) (Metallurgy--History)

Yakovlev, U.B.  
YAKOVLEV, V.B.

~~History of the use of Bessemer converters in smelting copper matte.~~  
(MIRA 11:1)  
Vop. 1st. est. i tekhn. no. 3:216-217 '57.  
(Bessemer process) (Copper metallurgy--History)

SOV/137-58-7-13980

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p2 (USSR)

AUTHOR: Yakovlev, V. B.

TITLE: The Origin of the Puddling Conversion of Pig Iron (K voprosu o  
vozniknovenii krichnogo peredela chuguna)

PERIODICAL: V sb.: Vopr. istorii yestestvozn. i tekhn. Nr 5. Moscow,  
AN SSSR, 1957, pp 150-155

ABSTRACT: The history of the development of conversion methods of Fe  
is examined.

P. N.

1. Iron--History 2. Iron--Processing

Card 1/1

*Xzkovlev, V.B.*  
YAKOVLEV, V.B.

Origin of knobbed pig iron. Vop.ist.est. 1 tskh. no.5:150-155  
'57. (MIRA 11:2)

(Cast iron--Metallography)

YAKOVLEV, V.B.

130-7-22/24

AUTHOR: Yakovlev, V.B.

TITLE: The Emergence of Iron-Making (Vozniknoveniye proizvodstva zheleza)

PERIODICAL: Metallurg, 1957, Nr 7, pp.41-43 (USSR)

ABSTRACT: Account of iron making from the earliest times to the beginning of predominance of the blast furnace. Illustrations of primitive methods and some constructional details are given. There are 6 figures.

AVAILABLE: Library of Congress.

Card 1/1



YAKOVLEV, V.B.

130-8-20/20

AUTHOR: Yakovlev, V.B.

TITLE: Development of the Production of Ball Iron (Razvitiye  
proizvodstva svarochnogo zheleza)

PERIODICAL: Metallurg, 1957, No.8, pp. 45 - 47 (USSR)

ABSTRACT: The author traces the development of iron-making methods  
giving a non-liquid product and of ways for further treatment  
of such products. He gives illustrations of some of the  
plant used.  
There are 4 figures.

AVAILABLE: Library of Congress.

Card 1/1

YAKOVLEV. V.B.

Bessemer process and its use in Russia. Trudy Inst.ist.est.i tekhn.  
9:62-72 '57. (MLRA 10:5)

(Bessemer process--History)

YAKOVLEV, V. B.

130-3-20/21

AUTHOR: Yakovlev, V. B.

TITLE: From wrought iron to cast steel. (Ot svarochnogo zheleza k litoy stali).

PERIODICAL: Metallurg, 1958, No.3, pp. 36-38 (USSR)

ABSTRACT: This is a historical article on iron- and steel-making from ancient times to the adoption of the Bessemer and open-hearth processes. The emphasis is on developments in the Russian empire. There are 5 figures.

AVAILABLE: Library of Congress.

Card 1/1

130-58-4-18/20

AUTHOR: Yakovlev, V.B.

TITLE: P.M. Obukhov

PERIODICAL: Metallurg, 1958, Nr 4, pp 33 - 34 (USSR)

ABSTRACT: This is a historical sketch of the life and work of the well-known Russian metallurgist, Pavel Matveyevich Obukhov (1820 - 1869). He specialised in steel-castings production and the article gives compositions of charges recommended by Obukhov for various types of cast steels.

Card 1/1

YAKOVLEV, V. B. Cand Tech Sci -- (diss) <sup>to</sup> "Development of methods of production  
of wrought iron in the USSR." Mos, 1959. 15 pp (Acad Sci USSR. Inst of History  
of Natural Science and Technology), 150 copies (KL, 43-59, 126)

YAKOVLEV, V.B.

Development of the pig iron finery process in Russia. Trudy  
Inst.ist.est.i tekhn. 25:215-248 '59. (MIRA 13:4)  
(Ironwork) (Puddling furnaces)

YAKOVLEV, Vladlen Borisovich; POGODIN, S.A., prof., zaslushannyi deyatel'  
nauki i tekhniki RSPSR, otv.red.; BEKASOVA, L.M., red.izd-va;  
GUSKOVA, O.M., tekhn.red.

[Development of methods of producing wrought iron] Razvitie  
sposobov proizvodstva svarochnogo zheleza v Rossii. Moskva,  
Izd-vo Akad.nauk SSSR, 1960. 217 p. (MIRA 14:2)  
(Wrought iron)

YEREMEYEVA, S.I.; YAKOVLEV, V.B.; CHESNOVA, L.V.; SHLYKOVA, S.A.; KOZLOV, S.G.;  
KHRENOV, K.K. (Kiyev); TIGRANYAN, S.T. (Yerevan); KROTIKOV, V.A. (Leningrad)

In the Soviet National Association of Historians of Science and  
Technology. Vop.ist.est.i tekhn. no.10:180-187 '60. (MIRA 14:3)  
(Scientific societies)



YAKOVLEV, V.B.

M.V. Lomonosov and ferrous metallurgy; on the 250th anniversary  
of his birth. Metallurg 6 no.11:38-39 N '61. (MIRA 14:11)  
(Lomonosov, Mikhail Vasil'evich, 1711-1765)

YAKOVLEV, V.B.

The first open-hearth furnace in Russia. Vop. ist. est. i tekhn.  
no.13:118-119 '62. (MIRA 16:5)

(Open-hearth process)

YAKOVLEV, V.B.

Stages in the development of world converter practices.  
Metallurg 8 no.10:38-39 0 '63. (MIRA 16:12)

1. Institut istorii yestestvoznaniya i tekhniki AN SSSR.

BUTUSOV, Ivan Vasil'yevich; YAKOVLEV, V.B., nauchn. red.; RYKOVA,  
L.Ya., ved. red.

[Digital systems for automatic control, measurements and  
regulation] TSifrovye ustroistva dlia avtomaticheskogo  
kontrollia, izmerenii i upravlenii. Leningrad, Nedra,  
1964. 374 p. (MIRA 17:9)

VAVILOV, A.A.; VERKHOLAT, M.Ye.; RUBASHKIN, I.B.; Prinimali uchastiye:  
YAKOVLEV, V.B.; ~~DE~~ IDOV, S.V.; VOROSHILOV, M.S., kand. tekhn.  
nauk, retsenzent.

[Actuating electromechanical servosystems for copying milling  
machines] Silovye elektromekhanicheskie slediashchie sistemy  
kopiroval'no-frezernykh stankov. Moskva, Mashinostroenie,  
1964. 406 p. (MIRA 18:2)

L 3280-66

ACCESSION NR: AR5014342

UR/0271/65/000/005/A003/A003  
62-5:519.25(002)

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika.  
Svodnyy tom, Abs. 5A19

AUTHOR: Vavilov, A. V.; Yakovlev, V. B.

TITLE: Log-frequency diagrams of discrete systems

CITED SOURCE: Izv. Leningr. elektrotekhn. in-ta, vyp. 53, 1964, 319-335

TOPIC TAGS: discrete system

TRANSLATION: Methods are considered of approximate plotting of log-frequency diagrams (LFD) for purposes of calculating discrete systems; the diagrams are constructed either from a sum of two LFD's (LF and HF) or by substituting an equivalent delay for a short time constant. The above methods ensure good agreement of these diagrams with the exact LFD's of discrete systems constructed on the basis of the total sum of all terms of the expansion. Formulas and characteristics are obtained which permit plotting PAM discrete-system

Card 1/2

L 3280-66

ACCESSION NR: AR5014342

LFD's with a duty factor of  $\gamma < 1$  on the basis of an exact or approximate LFD with  $\gamma = 1$ . It is demonstrated that the construction of a PDM discrete-system LFD, when the principle of equivalent areas is observed, does not differ from the construction of a PAM-system LFD with a duty factor  $\gamma < 1$ . Application of the above methods is illustrated by examples. Bibl. 7, figs. 6.

SUB CODE: IE

ENCL: 00

Card 2/2

L 58556-65 EEO-2/EWT(d)/FSS-2/EPF(n)-2/EWP(v)/EWP(k)/EWP(h)/EED-2/EWP(1)  
Fo-4/Pq-4/Pf-4/Pg-4/Pae-2/Pu-4/Pk-4/Pl-4 IJP(c) WFF/BC

ACCESSION NR: AP5013839

UR/0103/65/026/005/0823/0831

62-504.1.001.24

68  
B

AUTHOR: Vavilov, A. A. (Leningrad); Yakovlev, V. B. (Leningrad)

TITLE: Approximate methods of constructing logarithmic frequency characteristics of delay-type sampled-data systems

SOURCE: Avtomatika i telemekhanika, v. 26, no. 5, 1965, 823-831

TOPIC TAGS: automatic control, automatic control design, automatic control system, automatic control theory, sampled data system

ABSTRACT: A method is proposed for constructing log frequency characteristics which is based on two (h-f and l-f) characteristics or on replacement of small time constants by equivalent delays. The transfer function of a sampled-data system is found by a modified z-transform method. Formulas for the complex transfer factors are developed. Formulas for calculating the approximate log frequency characteristics, with an allowance for the duty factor of the sampling unit, are derived. The method basically developed for PAM systems is also applicable to PDM systems whose duty factor  $\gamma > 1$ . Orig. art. has: 4 figures and 41 formulas.

Card 1/2



L 58556-65

ACCESSION NR: AP5013839

ASSOCIATION: none

SUBMITTED: 09Apr64

ENCL: 00

SUB CODE: DP. IE

NO REF SOV: 005

OTHER: 002

Card 2/2 *ADP*

YAKOVLEV, V.E., vitse-admiral

Defense of dissertations, an important element in the training  
of scientific cadres of the navy. Mor. sbor. 48 no.7:35-41  
Jl '65. (MIRA 18:8)

1. YAKOVLEV, V. D.
2. USSR (600)
4. Seed Industry
7. Accounting, control and registration of high-grade seeds. Sel. i sem. 20, No. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

YAKOVLEV, V. D.,

"Conference of the East European Region Countries on Problems  
of the Determination of Time, Longitude and Latitude," Mezhdunarodnyy  
Geofizicheskiy God - Informatsionnyy Byulleten' /IGY - Information  
Bulletin/ No. 4, Moscow, 1958; pp. 105-107.

(Translation - 9030844) (JPRS/NY-L-236, 30 June 1958)

YAKOVLEV, V.F.; DUMOV, P.D., inzh., retsenzents; KRASKOVSKIY,  
Ye.Ya., kand. tekhn. nauk, red.; DENINA, I.A., red.  
izd-va; BARDINA, A.A., tekhn. red.

[Measurement of strains and stresses in machine parts]  
Izmereniia deformatsii i napriazhenii detalei mashin.  
Izd.2., ispr. i perer. Moskva, Mashgiz, 1963. 191 p.  
(MIRA 16:11)

(Strains and stresses)

AMELIN, S.V., prof., doktor tekhn.nauk (Leningrad); YAKOVLEV, V.F., doktor tekhn.nauk (Leningrad); SEMENOV, I.I., kand.tekhn.nauk (Leningrad); FROLOV, L.N., inzh. (Leningrad)

Frogs with movable parts. Zhel.dor.transp. 47 no.12:51-55 D '65.  
(MIRA 18:12)

YAKOVLEV, V. F.

USSR/Physics

Card 1/1

Authors : Yakovlev, V. F; Koshkin, N. I., and Nozdrev, V. F.

Title : Use of the impulse method in the study of ultra-sound adsorption in benzene and some of its halogen derivatives close to their solidification point.

Periodical : Dokl. AN SSSR 96, Ed. 2., 273 - 276, May 1954

Abstract : Report describes an impulse ultrasonic arrangement and the method of measuring the absorption in benzene and some of its halogen derivatives. This installation was successfully used for measuring the absorption close to solidification point. Results obtained through measuring the absorption of ultra sound in benzene, chlorobenzene and bromobenzene close to their solidification point are included. Six references; 4 USSR since 1949. Table, Graphs.

Institution : The Moscow Regional Pedagogical Institute

Presented by : Academician V. V. Shuleykin, March 22, 1954

YAKOVLEV, V. F.

"The Theory of Investigation Into the Absorption and Velocity of Propagation of Ultrasonic Waves by the Impulse Method", a report presented at a conference of professors and teachers of the institutes of the Ministry of Education RSFSR and published in the "Application of Ultrasonics to the Investigation of Substances", Moscow, 1955.



YAKOVLEV, V. F., SOBOLEV, V. D., NOZDREV, V. F., KOSHKIN, N. I. and SHIRKEVICH, M. G.

"Impulse Method of Fixed Distances, Its Physical Basis and Practical Application."  
Abstracted for inclusion in the Second international Congress on Acoustics,  
Cambridge, Mass., 17-24, Jun 1956

Moscow State University

Yakovlev, V. F.  
USSR/Acoustics - Ultrasonics, J-4

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35575

Author: Koshkin, N. I., Nozdrev, V. F., Sobolev, V. D., Shirkovich, M. G.,  
Yakovlev, V. F.

Institution: None

Title: The Fixed-Distance Pulse Procedure, Its Physical Foundations, and  
Practical Application

Original  
Periodical: Akust. zh., 1956, 2, No 2, 161-166

Abstract: A substantiation is given for a newly developed procedure for  
pulse measurements of absorption of ultrasonic waves. Unlike the  
present widely-used procedure, in which it is necessary to move the  
radiator and the reflector relative to each other, the radiator and  
reflector remain stationary in this method. This circumstance not  
only simplifies to a considerable extent the construction of the  
measuring chamber and accelerates the measurement process, but leads  
also to a more successful utilization of the pulse method in the

Card 1/2

USSR/Acoustics - Ultrasonics, J-4

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35575

Abstract: measurement of absorption at high temperatures and at high pressures, and also at various types of phase transitions.

Results are given on the measurement of the coefficient of absorption of ultrasonic waves, performed with the fixed-distance method; the experimental data are compared with the results obtained by other methods; it is indicated that it is possible to employ the fixed-distance pulse method for control and in industry.

Card 2/2"

*YAKOVLEV, V. F.*  
ZIPIR, A. V. and YAKOVLEV, V. F.

"Investigation of Phenomena Accompanying the Propagation of Ultrasound and Methods to be used in Work in this Field: Application of Multiple Refraction in the Investigation of Liquids"

report presented at the 6th Sci. Conference on the Application of Ultrasound in the investigation of Matter, 3-7 Feb 1958, organized by Min. of Education RSFSR and Moscow Oblast Pedagogic Inst. im. N. K. Krupskaya.

PHASE I BOOK EXPLANATION 80V/5207

Vsesoyuznyye konferentsiya profesorov i predavateley pedagogicheskikh institutov. Prikladnyye ultrazvukovye issledovaniya veshchestva. (Utilization of Ultrasonics for the Investigation of Matter) Moscow, Izd. MGFT, 1960. 267 p. 1,000 copies printed. (Series: Its Trudy, Vp. 11)

Ed. (Title page): V.F. Kozlov, Professor and B.B. Radyshev, Professor.

PURPOSE: This collection of articles is intended for physicists specializing in the physics of ultrasound.

CONTENTS: The collection of articles contributes the transactions of the VII Conference on the Applications of Ultrasonics to the Study of Materials, which was held at the Moscow Oblast Pedagogical Institute named M.K. Kravtsova. Individual articles of the collection discuss various problems in the wave mechanics of ultrasound, the absorption and propagation mechanics of ultrasonic waves in various media, the operating principle and design of generators and receivers of ultrasonic waves, the speed of sound and methods for its determination. Other articles deal with the applications of ultrasonics to investigations of the properties of materials. No personalities are mentioned. References accompany

Zikhr, A.D., and V.F. Yabovskiy (Moscow Oblast Pedagogical Institute named M.K. Kravtsova). Mechanism Theory of the Crystal Transformer Operating as a Receiver 29

Kal'yanov, B.I. (Tomskiy pedagogicheskii Pedagogical Institute). Some Problems of the Theory of Crystal Transformers 31

Radyshev, B.B. (Moscow Oblast Pedagogical Institute named M.K. Kravtsova). Calculation of Speeds of Sound in Binary Mixtures 63

Sentovich, A.A. (Moscow Oblast Pedagogical Institute named M.K. Kravtsova). Theory of Molecular Acoustics 71

Glinitskiy, A.A. (Moscow Oblast Pedagogical Institute named M.K. Kravtsova). Nature of the Stokes Factor 83

Korotkiy, A.A. (Odesskiy gosudarstvennyy universitet named I.I. Mechnikov). Hydrodynamic Theory of the Propagation of Sound Waves in a Liquid. 91

Kozlov, V., and A. Orlinskiy (Department of Physics of the Agricultural College of Gorky). Verification of the Interpretation of Acoustic Oscillation Curves 99

Zikhr, A.D., and V.F. Yabovskiy (Moscow Oblast Pedagogical Institute named M.K. Kravtsova). Experimental Basis of Methods for Using Multiple Echo-Responses to Investigate Liquid Media at Low Frequencies 107

Kozlov, G.A., and P.K. Onuchehov (Institut metallurgii AN SSSR - Institute of Metallurgy of the Academy of Sciences USSR). Using the Electron-Acoustic Transformer for Investigating the Homogeneity of Metals 123

Kozlov, B.M. (Odesskiy pedagogicheskii Institut-Odessa Pedagogical Institute). Changing the Natural Frequency of Magnetostriiction Vibrators With the Aid of Additional Masses 135

Shlyapnikov, V.V. (Moscow Pedagogical Institute). The Electrostriction of a Liquid as a Source of Ultrasonic Oscillations 139

Volkovich, M.P., and Ye.I. Pavlov (Institut fiziki Zemli AN SSSR - Institute of Physics of the Earth AN USSR). Investigation of Elastic Properties of Rock Samples Under All-Around Pressures of Up to 1000 kg/cm<sup>2</sup> 147

Kozlov, A.V., and B.B. Radyshev (Moscow Oblast Pedagogical Institute named M.K. Kravtsova). Propagation of Sound in Dispersive Media 155

Card 3/7

# PHASE I BOOK EVALUATION 80V/5207

Vostochnyye konferentsiya professorov i predavateley pedagogicheskikh institutov, Prikladnyye ultrazvukovye issledovaniya vushchestva (Utilization of Ultrasonics for the Investigation of Matter) Moscow, Izd. MGPI, 1960. 267 p. 1,000 copies printed. (Series: Its Study, v. 11)

Ed. (title page): V.P. Morzhov, Professor and B.B. Emdyartsev, Professor.

PURPOSE: This collection of articles is intended for physicists specializing in the physics of ultrasound.

COVERAGE: The collection of articles constitutes the transactions of the VII Conference on the Applications of Ultrasonics to the Study of Materials, which was held at the Moscow Oblast Pedagogical Institute named N.K. Krupskaya. Individual articles of the collection discuss various problems in the various branches of ultrasonics, the absorption and the propagation mechanisms of ultrasonic waves in various media, the operating principle and design of generators and receivers of ultrasonic waves, the speed of sound and methods for its determination. Other articles deal with the applications of ultrasonics to investigations of the properties of materials. No personalities are mentioned. References accuracy

## Utilization of Ultrasonics (Cont.)

80V/5207

- Dubrovskaya, E.F., and B.B. Emdyartsev (Moscow Oblast Pedagogical Institute named N.K. Krupskaya). Propagation of Sound in Biperme Media 165
- Kal'yanov, S.L. (Zimov Pedagogical Institute). Determination of the Speed of Ultrasound From the Periodic Variations of the Phase Relations of Two Acoustic Pulses 175
- Krasova, R.F., and B.B. Emdyartsev (Moscow Oblast Pedagogical Institute named N.K. Krupskaya). Speed of Sound in Aqueous Solutions of  $K_2SO_4$  181
- Shlyayev, A.S., and B.B. Emdyartsev (Izhmashskiy Institut - Kuznetskiy Pedagogical Institute, and Moscow Oblast Pedagogical Institute named N.K. Krupskaya). Investigation of the Propagation of Ultrasonic Waves in Three-Liquid Mixtures Whose Components Have Different Interaction Patterns 191
- Kozlov, S.P., and B.B. Emdyartsev (Moscow Oblast Pedagogical Institute named N.K. Krupskaya). Application of Acoustic Measurements in the Study of Density Fluctuations in Liquids 201
- Glinitskiy, A.A. (Moscow Oblast Pedagogical Institute named N.K. Krupskaya). Diffraction of Light on Damped Ultrasonic Waves 205
- Petrovich, I.I., and V.P. Yelovskiy (Moscow Oblast Pedagogical Institute named N.K. Krupskaya). New Method Using Interferometer to Measure Absorption of Ultrasonics 213
- Shteynberg, M.G. (Moscow Oblast Pedagogical Institute named N.K. Krupskaya). Investigation of the Speed of Propagation and Absorption of Ultrasound in Liquid Phase Methyl Alcohol Near the Critical Region 219
- Malyavina, I.D. (Moscow Oblast Pedagogical Institute named N.K. Krupskaya). Investigation of Temperature Dependence of Sliding and Volumetric Viscosity of Certain Organic Liquids in the Critical Region 225
- Rozina, Iu.P., and V.S. Tikhonova (Odeskskiy gosudarstvennyi Institut - Odesk Polytechnic). Device for Measuring the Intensity of an Ultrasonic Field in Conducting Liquids 233
- Petrovich, I.I., and V.P. Yelovskiy (Moscow Oblast Pedagogical Institute named N.K. Krupskaya). Reflection of Ultrasound in Van Der Waals Gases 239
- Merkulov, I.G. (IZMII im. V.I. Ul'yanova (Leningrad Electrotechnical Institute named V.I. Ul'yanov (Leningrad)). Absorption of Ultrasonic and Rayleigh Waves in Certain Crystals 247
- Fogel'ev, V.P. Lecture Room Demonstrations With Ferrite Ultrasound Radiation 253
- Bulletin 259
- AVAILABLE: Library of Congress (QC244.V82)

YAKOVLEV, V. F.

24(1) PHASE I BOOK EXPLOITATION SOV/3150

Wserosialnyakaya konferentsiya professorov i prepodavateley pedagogicheskikh institutov

Primeneniye ul'trazvukov i issledovaniyu veshchestv; trudy konferentsii, Vyp. 7 (Application of Ultrasonics for Analysis of Substances; Transactions of the All-Russian Conference of Professors and Teachers of Pedagogical Institutes, Nr 7) Moscow, Izd. MOPI, 1958. 283 p. 1,500 copies printed.

Tech. Ed.: S. P. Zaitov; Eds.: V. F. Mordev, Professor, and B. S. Andryavtsev.

PURPOSE: This book is intended for physicists, technicians, aeronautical engineers and other persons concerned with ultrasonics.

COVERAGE: The book contains twenty eight articles which treat ultrasonic phenomena in five general categories: 1) historical data on the development of ultrasonics in the Soviet Union over the past forty years; 2) the speed of sound in suspensions of varying concentration and number and type of components and the relationship between sound velocity and the compressibility of electrolytes;

3) ultrasonic investigations of physical and chemical properties of materials and the determination of physical and chemical constants, e. g. density of aqueous solutions, adiabatic compressibility, molarity of solutions (with given temperatures), viscosity, surface tension, saturation pressure and also ultrasonic investigation of the conduction and petrographic characteristics of industrial applications of ultrasonics; 4) the classification of materials cleaning of textile fibers and enhancing the susceptibility of some synthetic fibers to dyeing, etc.; and 5) apparatus which produce ultrasonic waves. No personalities are mentioned. References accompany each article.

Yakovlev, V. F. Application of Ultrasonic Methods for Measurement of the Depth of a Tempered Surface Layer 169

Yakovlev, V. F. and A. D. Zil'ber. Elementary Theory of a Quartz Converter 185

Kal'vachov, B. I. Measurement of the Coefficient of Absorption of Ultrasonic in the Critical Range of Methyl Acetate by the Pulse Method 201

Kal'vachov, B. I. Methodological Peculiarities of Investigating the Coefficient of Absorption of Substances in the Critical Range by the Pulse Method 207

Sobolev, V. D. The Application of a Telescopic System for Measurement of the Speed of Ultrasound by the Optical Method 217

Borisev, Yu. M. and O. A. Starostina. A New Design for the Measuring Chamber of a Photoelectric Apparatus 221

Maksimov, Ya. S. and A. I. Ivanchuk. A Demonstrator Pulse Generator With Ultrasonic Indicator 225

Mel'nikova, A. I. Some Academic Experiments With the Application of Electroacoustic Apparatus 229

Kudryavtsev, B. B. The Propagation of Sound in Liquids 237

Belinskii, B. A. The Theory of Speed Dispersion and the Coefficient of Absorption of Ultrasound in Esters of Organic Acids 269

Abulov, M. I. The Theory of Phase Transitions With Two Curie Points 279

Card 6/7

NOZDREV, V.F.; YAKOVLEV, V.F.; KOSHKIN, N.I.; GORBUNOV, M.A.

Certain new possibilities for using ultrasonic pulses for investigating substances. Izv. vys. ucheb. zav.; radiotekh. no.1:35-42  
'58. (MIRA 11:4)

1. Rekomendovana kafedroy obshchey fiziki Moskovskogo oblastnogo pedagogicheskogo instituta.  
(Ultrasonics) (Liquids)



Manuscript from the Program and Information Circular, 1953, reports to be submitted for 1954.

YAKOVLEV, V. F.

PHASE I BOOK EXPLOITATION SOV/3352

Vserossiyskaya konferentsiya professorov i prapodavateley pedagogicheskikh institutov.

Primeneniye ul'trazvukov i issledovaniya veshchestva; trudy konferentsii, vyp. 8 (Application of Ultrasonics in the Study of Matter; Transactions of a Conference, No. 8) Moscow, Izd. MOPI, 1959. 170 p. 1,000 copies printed.

Tech. Ed.: S. P. Zhitor.

PURPOSE: The book is intended for physicists, particularly those specializing in the field of ultrasonics.

COVERAGE: This is a collection of 12 articles dealing with problems of acoustics, ultrasonics, and molecular physics. References are given at the end of each article.

Predvoditel, A. S. Dispersion of Acoustic Waves in Rarefied Gases. Article I. 19

Zipin, A. D., and V. F. Yakovlev. Pulse Method for Multiple Transformation of an Ultrasonic Signal in the Investigation of Liquid Media 63

Ilgunas, V., and E. Yaronis. On the Theory of Interferometers with Variable and Constant Length 67

Trellin, Yu. S. Some Results of Measurement of Ultrasonic Velocity in Gases by the Pulse Method 75

Volarovich, M. P., and D. B. Balashov. Investigation of Ultrasonic Velocity in Nitrogen Under Pressures up to 1050 kg/cm<sup>2</sup> 83

Akhmetzhanov, K. G., and M. G. Shirkavich. Ultrasonic Velocity in Compressed Vapors of Ethyl Alcohol and Determination of Heat Capacities  $C_p$  and  $C_v$  93

Perepechko, I. I. Ultrasonic Propagation in Rarefied Gases 103

Kuchera, P. On Some Conditions for Applicability of Raoult's Law for Solutions 115

Shilyayev, A. S., and B. B. Kudryashov. Ultrasonic Velocity and Surface Tension in Ternary Liquid Systems 121

Bessonov, M. B. Measuring Ultrasonic Velocity and Absorption in Solutions at High Temperatures 137 15

PHASE I BOOK EXPLOITATION

SOV/3729

Yakovlev, Vsevolod Fedorovich, and Ivan Sergeyevich Inyutin

Izmereniya napryazheniy detaley mashin (Measuring Stresses of Machine Components)  
Moscow, Mashgiz 1960. 114 p. Errata slip inserted. 3,500 copies printed.

Reviewer: P.D. Dumov, Engineer; Ed.: A.M. Turichin, Candidate of Technical  
Sciences; Ed. of Publishing House: M.A. Chfas; Tech. Ed.: O.V.  
Speranskaya; Managing Ed. for Literature on Machinery Manufacturing  
(Leningrad Division, Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: This book is intended for engineers, technicians, and scientific  
workers engaged in the analysis of mechanical deformations and stresses.

COVERAGE: This is a study of methods for the experimental measuring of stresses  
within machine components. The bases of measuring stresses in the interior of  
components by means of a wire strain gauge without paper backing are given. There  
are examples of the experimental solution of a number of problems involving con-  
ditions of linear, plane and volume stress states and static and dynamic loads.

Card 1/4

# Measuring Stresses of Machine Components

80V/3729

No personalities are mentioned. There are 43 references, all Soviet.

## TABLE OF CONTENTS:

Preface	3
Introduction	4
Ch. I. Fundamental Methods of Experimental Stress Analysis	10
1. Polarization-optical method	10
2. X-ray method	13
3. Brittle-coating method	15
4. Grid method	17
5. Tensometering	18
6. Physical principles of the operation, working principle, and properties of wire strain gauges	19
7. Strain gauge circuit diagrams	25
8. Measuring equipment	28
Ch. II. Electrotensometric Stress Measurements Within Bodies by Means of Special Resistance Strain Gauges	30

~~Card 2/4~~

TELESNIN, Roman Vladimirovich; YAKOVLEV, Vitaliy Fedorovich; SADIKOV,  
B.A., red.; KREYS, I.G., tekhn. red.

[Course in physics; electricity] Kurs fiziki; elektrichestvo.  
Moskva, Gos. uchebno-pedagog. izd-vo M-va prosv. RSFSR, 1960.  
455 p. (MIRA 14:5)

(Electricity)

(Magnetism)

24 1800 1482 2607

27642  
S/194/61/000/002/031/039  
D216/D305

AUTHORS: Zipir, A.D. and Yakovlev, V.F.  
TITLE: Experimental basis of the method of multiple echo-pulses for the low-frequency analysis of liquids  
PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 2, 1961, 12, abstract 2 E97 (V sb. Primeneniye ul'traakust. k issled. veshchestva, no. 11, M., 1960, 107-122)

TEXT: In measurements of the absorption coefficient of ultra sound at frequencies 1 - 6 Mc/s, the following are the factors limiting the measurement accuracy: owing to weak absorption at these frequencies, long acoustic paths are required; the measurements have to be made inside the ultrasonic beam at a point where its divergence is not yet noticeable; diffraction losses have to be taken into account. A pulse method of measuring the absorption coefficient in poorly absorbing liquids has been evolved which utilizes

Card 1/2

Experimental basis...

27642

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D216/D302

multiple echo-pulses. A pulse circuitry which utilizes the existing pulse instruments is described. The duration of the transmitted acoustic pulse - 10 - 15  $\mu$  sec, repetition frequency 150 c/s. The display at the CRO screen consists of several peaks with decreasing amplitudes. Since the pulses are reflected many times both from the reflector and from the crystal (radiator), it was necessary to establish whether the reflector repeats the pulse in the same way as the crystal. The experiment showed that the quartz is not a simple reflector, but rather a transducer of acoustical energy and this fact has been taken into account in actual measurements. Two methods of measuring the absorption coefficient by means of echo pulses are described: the measurement from the n-th pulse with varying distance and the measurement with fixed spacing between the quartz and reflector. The method has been proved using well-known liquids (toluene, benzene etc.). The experimental spread of results did not exceed 4 - 6%. 7 figures. 29 references.

X

Card 2/2

24.1800

1482. 2607

27644  
S/194/61/000/002/033/039  
D216/D302

AUTHORS: Perepechko, I.I. and Yakovlev, V.F.  
TITLE: New interferometric method of measuring absorption of ultra sound  
PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 2, 1961, 12, abstract 2 E99 (V sb. Primeneniye ul'traakust, k issled. veshchestva, no. 11, M., 1960, 213-218)

TEXT: The determination of ultra sound absorption in gases is somewhat difficult (especially when it is small). It can be determined in a comparatively easy manner by observing the changes of voltage at the quartz transmitter. The description is given of the respective methods of measuring the absorption coefficient from the changes of voltage with varying distance between the radiator and reflector. Using the suggested method the absorption coefficient can be determined having only 2 points on the resulting curve. 5 references.

Card 1/1



MALYAVIN, I.G.; YAKOVLEV, V.F.; NOZDREV, V.F.

Investigation of the temperature dependence of the kinematic  
viscosity of certain organic liquids and their saturated vapors  
in the critical region. Uch. zap. MOPI 92:3-21 '60. (MIRA 14:9)  
(Organic compounds) (Viscosity)

S/081/61/000/023/019/061  
B117/B147

AUTHORS: Seregina, V. I., Yakovlev, V. F.

TITLE: Thermal conditions of plane laminar flow of a viscous fluid

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 263,  
abstract 23I37 (Uch. zap. Mosk. obl. ped. in-ta,  
v. 92, 1960, 161-169)

TEXT: In the study of temperature conditions of a plane laminar flow caused by the motion of a plate in fluid, which is thermodynamically stabilized, the authors started from the conceptions on the flows of energy which are the reason of its dissipation. They found that this method allows a more complete description of the stabilized motion than the common hydrodynamic explanation of this process. [Abstracter's note: Complete translation.] ✓

Card 1/1

30503  
S/194/61/000/008/052/092  
D201/D304

24,1800 (1144, 1147, 1482)

AUTHORS: Perepechko, I.I. and Yakovlev, V.F.

TITLE: An optical method of measuring absorption of ultrasound

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1961, 7, abstract 8 E52 (Uch. zap. Mosk. obl. ped. in-ta, 1960, 92, 249-253)

TEXT: It is stated that the optical diffraction method may be used for measuring not only the velocity, but also the absorption coefficient, without introducing any basic rearrangement of the installation. The Bommel method has been experimentally checked for determining the absorption coefficient from the half-width of the diffraction line of the first order. The absorption coefficients obtained by this were 50 - 100 times greater for argon and nitrogen, and 10 times greater for acetic acid. An optical method is proposed of a constant distance which would permit evaluation of the change

Card 1/2

30503  
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D201/D304

An optical method...

in the absorption coefficient with changing pressure, temperature of frequency (working with harmonics). The voltage at the quartz is kept constant. The variations in the intensity of the first order diffraction line together with the dependence of piezoelectric constant and of the acoustic resistance of the medium on temperature and pressure permit evaluation of the change of the respective formulae. 4 references. [Abstracter's note: Complete translation]

Card 2/2